

# Scanning macro-XRF Investigations of the painting “Pauline im weißen Kleid” attributed to Philipp Otto Runge

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Philipp Otto Runge (1777-1810) is next to Casper David Friedrich one of the most important painters of romanticism in Germany. Due to his early death, his oeuvre is limited in size and in some cases the attribution is difficult. During an experiment at BL L, the painting “Pauline im weißen Kleid” was investigated. This canvas has been attributed to Runge but is not generally accepted as a genuine work of him [1].

Conventional X-ray radiography images of the painting indicated changes in the composition of the painting during or shortly after its creation. To investigate these changes further, selected areas of the painting were investigated by scanning macro-XRF with a 35 keV beam of 450 µm diameter at Beamline L of HASYLAB. With its size of 105 by 85 cm “Pauline im weißen Kleid” is the largest painting yet investigated at Beamline L, making considerable adaptation of the measuring geometry and stages necessary. Fig. 1 only shows a small part of the results obtained.

The preliminary results in figure 1 show substantial changes in the composition of the painting. From these results we can deduce that the original portrait has had a considerably different general outlook than in the final portrait. Also the use of a specific pigment was revealed during the analyses. The art-historical interpretation of our findings, involving also the analysis of other works of Runge in order to establish the presence of this pigment in works of Runge, is not yet finished.



Figure 1: Left: Full painting; square indicating location of XRF-maps. Right: Distribution of Fe and Co in the indicated area. While the Fe concentration is higher in the dark background, the Co distribution shows the blue ribbons, painted in a Cobalt blue pigment.

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## References

- [1] C. Vagt, Pantheon **46**, 106-116 (1988).